REMARKS/ARGUMENTS

This Amendment is in response to the Office Action dated March 20, 2007. Claims are1-20 pending. Claims 1-20 are rejected. Claims 1, 8, 9, 11, 18, and 19 have been amended and no claims have been cancelled or added. Accordingly, claims 1-20 remain pending in the present application.

Claims 1 and 11 have been amended to recite that a user is allowed to input values for the parameters and to designate a plurality of parameters as independent variables, and that the optimal reflectivity value is obtained by calculating a cost function R + S using the plurality of independent variables at once. Claims 9 and 19 have been amended to be consistent with amended claims 1 and 11.

Claim 8 is objected to because of informalities. The Examiner states that the phrase "a minimum values" is grammatically incorrect. Accordingly, Applicant has amended claim 8 to recite "a minimum value". Claim 18 recites the same limitation and is similarly amended. The Examiner object is thus traversed.

Claims 5-8 and 15-18 are rejected under 35 USC 112, second paragraph, as being indefinite. The Examiner states:

> Regarding claims 5-8 and 15-18, the variable 'k_j' is given no definition in either the specification or the claim bodies, and thus lacks antecedent support.
>
> Regarding claim 8, it is unclear as to whether 'minimum values' and 'maximum value' apply to each and everyone of the given parameters (thickness, n, k) or not.

Claims 5 and 15 recite a complex index of refraction "$n_j = n_j - ik_j$". Those with ordinary skill in the art would readily understand that this is a well known and conventional

mathematical representation of a complex index of refraction. Under this convention, 'k' is the extinction coefficient. K is thus inherently defined in the specification and the claims.

Claim 8 has been amended to clarify that the minimum value and the maximum value apply to the thickness and the complex indexes of refraction for each layer. Claim 18 is similarly amended.

Applicant submits that claims 5-8 and 15-18 comply with 35 USC 112.

Claims 1-20 are rejected under 35 USC 102(b) as being anticipated by "IMD-Software for Modeling the Optical Properties of Multilayer Films" by Windt (hereinafter Windt). Applicant respectfully disagrees as to the claims as amended.

The invention, as recited in amended independent claims 1 and 11, provide a method for obtaining an optimal reflectivity value for complex multilayer stacks, comprising: (a) generating a model of a multilayer stack and parameterizing each layer by a thickness and an index of refraction; (b) allowing a user to input values for the parameters, to select one of the layers, and to designate a plurality of the parameters as independent variables; (c) calculating an extrema for a cost function of reflectivity R for the selected layer using the input parameter values; (d) calculating sensitivity values S for the extrema; and (e) obtaining the optimal reflectivity value by calculating a cost function R + S using the plurality of independent variables at once.

In contrast, the example in Windt at p. 368, column 1, referenced by the Examiner, shows how IMD can be used to adjust, for optimal performance, design-parameter values of a periodic multilayer. Shown in an IMD-generated plot showing the normal incidence soft x-ray reflectance of a Y/Al periodic multilayer film as a function of one particular design parameters, the film-thickness ratio. This example thus fails to disclose calculation of the optimal reflectivity value with a plurality of parameters designated as independent

variables.

On pp. 366-367, Windt discloses that up to eight independent variables can be designated simultaneously. The dimensionality of the resulting optical functions will be equal to the number of independent variables specified. Once the structure and independent variables are defined, any or all of the optical functions R, T, and A, and the electric-field intensity, I, can be computed by selecting these functions in the DEPENDENT VARIABLES area of the main IMD widget".

However, Windt thus does not specifically disclose that the optimal reflectivity value is obtained using the independent variables at once. Windt discloses that multiple independent variables can be designated but does not disclose how these independent variables are used in the calculation of the reflectivity value. In fact, based on the example on p. 368, Windt suggests that optimal performance is determined as a function of one particular design parameter.

Further, the Examiner cites p. 368, column 1 as teaching "'calculating an extrema for a cost function of reflectivity R using the input parameter values". However, Applicant fails to see where Windt teaches this limitation. Windt discloses determine the optimized values of the design parameters, which is not analogous to the extrema (minimum and maximum) for the cost function of reflectivity R.

For the above reasons, Windt does not teach or suggest allowing a user to input values for the parameters and to designate a plurality of the parameters as independent variables, calculating an extrema for a cost function of reflectivity R using the input parameters values, and obtaining the optimal reflectivity value by calculating a cost function R + S using the plurality of independent variables at once, in combination with the other elements as recited in amended independent claims 1 and 11.

Claims 1 and 11 are thus allowable over Windt. Applicant submits that claims 2-10

and 12-20 are allowable because they dependent these allowable base claims.

In view of the foregoing, it is submitted that claims 1-20 are allowable over the cited reference. Accordingly, Applicant respectfully requests reconsideration and passage to issue of claims 1-20 as now presented.

Applicants' attorney believes this application in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicants' attorney at the telephone number indicated below.

Respectfully submitted,

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Date: June 20, 2007